WHAT IS CLAIMED IS:

1. A method of controlling an internal combustion engine that drives a reciprocating gas compressor whose output is controlled by specifying "load steps" for its cylinders, comprising the steps of:

receiving compressor operating values, the compressor operating values being at least the compressor load step for each cylinder, the compressor suction pressure, and the compressor discharge pressure; and

calculating engine control parameters, based on the compressor operating values.

2. The method of Claim 1, wherein the engine control parameters represent at least air flow to the engine.

3. The method of Claim 1, wherein the engine control parameters further represent engine spark timing.

4. The method of Claim 3, wherein the engine spark timing is determined per cycle.

5. The method of Claim 3, wherein the engine spark timing is determined per cylinder.

6. The method of Claim 1, wherein the engine control parameters further represent fuel quantity delivered to the engine.

7. The method of Claim 1, wherein the engine control parameters further represent fuel injection or admission timing.

8. The method of Claim 7, wherein the fuel injection or timing is determined per cycle.

9. The method of Claim 7, wherein the fuel injection or timing is determined per cylinder.

10. The method of Claim 1, wherein the engine control parameters further represent pre-chamber fueling quantity.

11. The method of Claim 10, wherein the pre-chamber fueling quantity is determined per cylinder.

12. The method of Claim 1, wherein the engine control parameters further represent pre-chamber fuel pressure.

13. The method of Claim 12, wherein the pre-chamber fuel pressure is determined per cylinder.

14. The method of Claim 1, wherein the engine control parameters further represent air-to-fuel ratio.

15. The method of Claim 14, wherein the air-to-fuel ratio is determined per cylinder.

16. The method of Claim 1, wherein the engine has a turbocharger and wherein the engine control parameters further represent turbocharger wastegate control parameters.

17. The method of Claim 1, wherein the engine has pilot injectors and wherein the engine control parameters control the pilot injectors.

18. The method of Claim 17, wherein the pilot injector parameters are determined per cylinder.

19. The method of Claim 1, further comprising the step of receiving engine operating values, wherein the calculating step is further based on engine operating values.

20. The method of Claim 19, wherein the engine operating value is from the group of: engine speed, intake manifold air pressure, intake manifold air temperature, engine temperature, exhaust back pressure, pre-turbine pressure, exhaust gas composition, air flow, fuel flow, and ignition system energy.

21. The method of Claim 1, further comprising the steps of calculating compressor control parameters, the compressor control parameters representing at least compressor load steps.

22. The method of Claim 1, further comprising the steps of calculating compressor control parameters, the compressor control parameters representing at least compressor pocket positions.

23. The method of Claim 1, further comprising the steps of calculating compressor control parameters, the compressor control parameters representing at least compressor load step sequences.

24. The method of Claim 1, further comprising the steps of calculating compressor control parameters, the compressor control parameters representing at least compressor suction conditions.

25. The method of Claim 1, further comprising the steps of calculating compressor control parameters, the compressor control parameters representing at least compressor discharge conditions.

26. The method of Claim 1, further comprising the step of communicating the engine control parameters over a network.

27. The method of Claim 1, wherein the calculating step is further based on input data representing engine efficiency.

28. The method of Claim 1, wherein the calculating step is further based on input data representing engine emissions.

29. The method of Claim 1, wherein the calculating step provides steady state engine control.

30. The method of Claim 1, wherein the calculating step provides transient compensation of engine control parameters.

31. A method of controlling an internal combustion engine that drives a reciprocating gas compressor whose output is controlled by specifying "load steps" for its cylinders, comprising the steps of:

receiving compressor operating values, the compressor operating values being at least the compressor load step for each cylinder, the compressor suction pressure, and the compressor discharge pressure;

receiving at least one engine operating value from the group of: engine speed, intake manifold air pressure, intake manifold air temperature, engine temperature, exhaust back pressure, pre-turbine pressure, exhaust gas composition, air flow, fuel flow, and ignition system energy; and

calculating engine control parameters, based on the compressor operating values and engine operating values.

32. A controller for controlling an internal combustion engine that drives a reciprocating gas compressor whose output is controlled by specifying "load steps" for its cylinders, comprising:

circuitry for receiving compressor operating values, the compressor operating values being at least the compressor load step for each cylinder, the compressor suction pressure, and the compressor discharge pressure; and

circuitry for calculating engine control parameters, based on the compressor operating values.